

THE INVENTION CLAIMED IS

1. Apparatus for closure of a physical anomaly having a lumen, the apparatus comprising a closure body, wherein said closure body has a reduced secondary shape configured for positioning said closure body within said lumen, and a primary shape configured to close said anomaly.

2. The apparatus of claim 1 wherein said closure body comprises a shape memory material.

3. The apparatus of claim 1 wherein said closure body comprises a shape memory polymer.

4. The apparatus of claim 1 wherein said closure body comprises a shape memory polymer foam.

5. The apparatus of claim 1 wherein said closure body comprises a shape memory material having a substantially spherical shape.

6. The apparatus of claim 1 wherein said closure body comprises a shape memory material having a substantially barbell shape.

7. The apparatus of claim 1 wherein said closure body comprises a shape memory material having a substantially band shape.

8. The apparatus of claim 1 wherein said closure body comprises a shape memory material having a substantially double truncated cone shape.

9. The apparatus of claim 1 wherein said closure body comprises a shape memory material having a substantially flowing fluid shape.

10. The apparatus of claim 1 wherein said closure body is biodegradable.

11. The apparatus of claim 1 further comprising a delivery catheter.

12. The apparatus of claim 1 further comprising a plunger actuator.

13. The apparatus of claim 1 further comprising a backbleed tube.

14. The apparatus of claim 1 further comprising a plunger actuator.

15. The apparatus of claim 1 further comprising a restraint tube.

16. The apparatus of claim 1 wherein the physical anomaly is chosen from the group consisting of arteriotomy puncture sites, septal defects, patent ductus, and combinations thereof.

17. The apparatus of claim 1 further comprising an actuator configured to transition the closure body from the reduced secondary shape to the primary shape.

18. The apparatus of claim 17, wherein the actuator is chosen from the group consisting of external sheaths, removable sheaths, constraint sheaths, light, coherent light, heat, externally applied energy, plungers, RF, induction, stress, and combinations thereof.

19. A method of closing a physical anomaly having a passage, the method comprising:

positioning a closure body in the passage of the physical anomaly when said closure body is disposed in a reduced secondary shape, and

transitioning said closure body to a larger primary shape within the passage, thereby closing said anomaly.

20. The method of claim 19 wherein transitioning the closure body further comprises transitioning the closure body with an actuator.

21. The method of claim 20, wherein transitioning the closure body, with an actuator further comprises transitioning the closure body with an actuator chosen from the group consisting of external sheaths, removable sheaths, constraint sheaths, light, coherent light, heat, externally applied energy, plungers, RF, induction, stress, and combinations thereof.

22. The method of claim 19 wherein positioning a closure body further comprises positioning a shape memory polymer body.

23. The method of claim 19 wherein positioning a closure body further comprises positioning a shape memory polymer foam body.

24. The method of claim 19 wherein positioning a closure body in the passage of the physical anomaly when said closure body is disposed in a reduced secondary shape further comprises positioning the closure body with a delivery catheter.

25. The method of claim 19 wherein transitioning said closure body further comprises transitioning the closure body with a plunger actuator.

26. The method of claim 19 wherein transitioning said closure body comprises transitioning the closure body with a polymer body with a generally flowing fluid shape.

27. The method of claim 19 wherein positioning a closure body in the passage of the physical anomaly when said closure body is disposed in a reduced secondary shape further comprises positioning the closure body with a polymer body with a spherical shape.

28. The method of claim 19 wherein positioning a closure body in the passage of the physical anomaly when said closure body is disposed in a reduced secondary shape further comprises positioning the closure body with a polymer body with a generally barbell shape.

29. The method of claim 19 wherein positioning a closure body in the passage of the physical anomaly when said closure body is disposed in a reduced secondary shape further comprises positioning the closure body with a polymer body with a generally band shape.

30. The method of claim 19 wherein positioning a polymer body in the passage of the physical anomaly when said polymer body is disposed in a

reduced secondary shape further comprises positioning the closure body with a polymer body with a generally double truncated cone shape.

31. The method of claim 19 wherein the physical anomaly is chosen from the group consisting of arteriotomy puncture sites, septal defects, patent ductus, and combinations thereof.

32. A system for the closure of a physical anomaly having a passage, the system comprising:

a closure body for closing the anomaly, said closure body having a secondary shape configured for positioning the body in the passage of the physical anomaly, and a larger primary shape;

means for positioning said closure body in the passage of the physical anomaly when said closure body is in said secondary shape; and

means for transitioning said closure body to said larger primary shape for closing said anomaly.

33. The system for the closure of a physical anomaly of claim 32 wherein said closure body comprises a shape memory polymer body with a secondary shape for being positioned in the passage of the physical anomaly and a larger primary shape for closing said anomaly.

34. The system for the closure of a physical anomaly of claim 32 wherein said closure body comprises a shape memory polymer foam body with a secondary shape for being positioned in the passage of the physical anomaly and a larger primary shape for closing said anomaly.

35. The system of claim 32 wherein the physical anomaly is chosen from the group consisting of arteriotomy puncture sites, septal defects, patent ductus, and combinations thereof.